

**REPLACEMENT CLAIM SET WITH CHANGES SHOWN**

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- 197) (Currently Amended) A method of producing a cloned non-human mammalian NT embryo, the method comprising introducing donor genetic material from a species into an oocyte of the same species to yield a cloned non-human mammalian NT embryo, wherein
- a) the donor genetic material introduced into the oocyte is obtained from a donor cell that is arrested at late G1 phase,
  - b) the donor cell is arrested at late G1 phase by an arresting agent that inhibits CDK2 Kinase; and
  - c) the donor genetic material introduced into the oocyte comprises a nucleus.
- 198) (Original) The method of claim 197 wherein the donor genetic material introduced into the oocyte comprises an isolated nucleus.
- 199) (Original) The method of claim 197 wherein the donor genetic material introduced into the oocyte is present in a donor cell.
- 200) (Original) The method of claim 199 further comprising fusing the donor cell and the oocyte.
- 201) (Original) The method of claim 197 wherein the donor genetic material introduced into the oocyte is obtained from a differentiated cell.
- 202) (Original) The method of claim 201 wherein the differentiated cell is selected from the group consisting of a fibroblast, an epithelial cell, a hematopoietic cell, and a lymphocyte.
- 203) (Original) The method of claim 202 wherein the epithelial cell is a cumulus cell.
- 204) (Original) The method of claim 201 wherein the differentiated cell is obtained from a source selected from the group consisting of a late embryogenic stage embryo, a fetus, an adult, and a cultured cell line.
- 205) (Original) The method of claim 197 wherein the donor genetic material comprises transgenic DNA.
- 206) (Original) The method of claim 197 further comprising activating the oocyte or the NT embryo.

- 207) (Original) The method of claim 206 wherein activating the oocyte occurs before the donor genetic material is introduced into the oocyte.
- 208) (Original) The method of claim 206 wherein activating the oocyte or the NT embryo occurs at about the same time the donor genetic material is introduced into the oocyte.
- 209) (Original) The method of claim 206 wherein activating the NT embryo occurs after the donor genetic material is introduced into the oocyte.
- 210) (Original) The method of claim 206 wherein activating comprises introducing to the oocyte or the NT embryo cytoplasm from a fertilized oocyte.
- 211) (Original) The method of claim 206 wherein activating comprises removing the donor genetic material from the NT embryo and introducing the donor genetic material to an enucleated fertilized oocyte.
- 212) (Original) The method of claim 206 wherein activating comprises artificially activating the oocyte or the NT embryo.
- 213) (Original) The method of claim 212 wherein activating comprises contacting the oocyte or NT embryo with cycloheximide.
- 214) (Original) The method of claim 197 further comprising enucleating the oocyte before introducing the donor genetic material.
- 215) (Original) The method of claim 197 further comprising enucleating the NT embryo after introducing the donor genetic material to the oocyte, wherein enucleating the NT embryo comprises removal of maternal genetic material.
- 216) (Original) The method of claim 197 wherein the oocyte is arrested at metaphase I as a result of exposure to an arresting agent.
- 217) (Original) The method of claim 216 wherein the oocyte is enucleated while in metaphase I.
- 218) (Original) The method of claim 197 wherein the non-human mammal is a pig.
- 219) (Original) The method of claim 197 wherein the non-human mammal is a cow.
- 220) (Original) The method of claim 197 further comprising incubating the NT embryo such that the NT embryo undergoes cell division.

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- 221) (Currently Amended) [The method of claim 220] A method of producing a cloned non-human mammal, the method comprising introducing donor genetic material of a species into an oocyte of the same species to yield a cloned non-human mammalian NT embryo and incubating the NT embryo such that the NT embryo undergoes cell division wherein:
- a) the donor genetic material introduced into the oocyte is obtained from a donor cell that is arrested at late G1 phase,
  - b) the donor cell is arrested at late G1 phase by an arresting agent that inhibits CDK2 Kinase, and [wherein]
  - c) incubating the NT embryo occurs after transfer of the NT embryo to a host mammal.
- 222) (Currently amended) [The method of claim 220] A method of producing a cloned non-human mammal, the method comprising introducing donor genetic material of a species into an oocyte of the same species to yield a cloned non-human mammalian NT embryo and incubating the NT embryo such that the NT embryo undergoes cell division wherein:
- a) the donor genetic material introduced into the oocyte is obtained from a donor cell that is arrested at late G1 phase,
  - b) the donor cell is arrested at late G1 phase by an arresting agent that inhibits CDK2 Kinase, and
  - c) [wherein] incubating the NT embryo comprises culturing the NT embryo in vitro until at least the 2-cell stage.
- 223) (Currently amended) The method of claim 222 further comprising transferring the NT embryo to a host mammal of the same species after the in vitro incubation.
- 224) (Original) The method of claim 223 wherein the NT embryo undergoes cell division in the host mammal and develops into a fetus.
- 225) (Original) The method of claim 223 wherein the NT embryo undergoes cell division in the host mammal and develops into an offspring.
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- 229) (Original) The method of claim 197 wherein the donor cell is arrested at late G1 phase by olomoucine.
- 230) (Original) The method of claim 197 wherein the donor cell is arrested at late G1 phase by roscovitine.
- 231) (New) A method of producing a cloned non-human mammalian NT embryo, the method comprising introducing donor genetic material from a species into an oocyte of the same species to yield a cloned non-human mammalian NT embryo, wherein
- a) the donor genetic material introduced into the oocyte is obtained from a donor cell that is arrested at late G1 phase, and
  - b) the donor cell is a somatic cell.
- 232) (New) The method of claim 231 wherein the donor genetic material introduced into the oocyte comprises an isolated nucleus.
- 233) (New) The method of claim 231 wherein the donor genetic material introduced into the oocyte is present in a donor cell.
- 234) (New) The method of claim 233 further comprising fusing the donor cell and the oocyte.
- 235) (New) The method of claim 231 wherein the differentiated cell is selected from the group consisting of a fibroblast, an epithelial cell, a hematopoietic cell, and a lymphocyte.
- 236) (New) The method of claim 231 wherein the epithelial cell is a cumulus cell.
- 237) (New) The method of claim 231 wherein the differentiated cell is obtained from a source selected from the group consisting of a late embryogenic stage embryo, a fetus, an adult, and a cultured cell line.
- 238) (New) The method of claim 231 wherein the donor genetic material comprises transgenic DNA.
- 239) (New) The method of claim 231 further comprising activating the oocyte or the NT embryo.
- 240) (New) The method of claim 239 wherein activating the oocyte occurs before the donor genetic material is introduced into the oocyte.

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- 241) (New) The method of claim 239 wherein activating the oocyte or the NT embryo occurs at about the same time the donor genetic material is introduced into the oocyte.
- 242) (New) The method of claim 239 wherein activating the NT embryo occurs after the donor genetic material is introduced into the oocyte.
- 243) (New) The method of claim 239 wherein activating comprises introducing to the oocyte or the NT embryo cytoplasm from a fertilized oocyte.
- 244) (New) The method of claim 239 wherein activating comprises removing the donor genetic material from the NT embryo and introducing the donor genetic material to an enucleated fertilized oocyte.
- 245) (New) The method of claim 239 wherein activating comprises artificially activating the oocyte or the NT embryo.
- 246) (New) The method of claim 239 wherein activating comprises contacting the oocyte or NT embryo with cycloheximide.
- 247) (New) The method of claim 231 further comprising enucleating the oocyte before introducing the donor genetic material.
- 248) (New) The method of claim 231 further comprising enucleating the NT embryo after introducing the donor genetic material to the oocyte, wherein enucleating the NT embryo comprises removal of maternal genetic material.
- 249) (New) The method of claim 231 wherein the oocyte is arrested at metaphase I as a result of exposure to an arresting agent.
- 250) (New) The method of claim 216 wherein the oocyte is enucleated while in metaphase I.
- 251) (New) The method of claim 231 wherein the non-human mammal is a pig.
- 252) (New) The method of claim 231 wherein the non-human mammal is a cow.
- 253) (New) The method of claim 231 further comprising incubating the NT embryo such that the NT embryo undergoes cell division.
- 254) (New) A method of producing a cloned non-human mammal, the method comprising introducing donor genetic material of a species into an oocyte of the same species to yield a cloned non-human mammalian NT embryo and incubating the NT embryo such that the NT embryo undergoes cell division wherein:

- a) the donor genetic material introduced into the oocyte is obtained from a donor cell that is arrested at late G1 phase,
- b) the donor cell is arrested at late G1 phase by an arresting agent;
- c) the donor cell is a somatic cell; and
- d) incubating the NT embryo occurs after transfer of the NT embryo to a host mammal.
- 255) (New) A method of producing a cloned non-human mammal, the method comprising introducing donor genetic material of a species into an oocyte of the same species to yield a cloned non-human mammalian NT embryo and incubating the NT embryo such that the NT embryo undergoes cell division wherein:
- a) the donor genetic material introduced into the oocyte is obtained from a donor cell that is arrested at late G1 phase,
- b) the donor cell is arrested at late G1 phase by an arresting agent;
- c) the donor cell is a somatic cell; and
- d) incubating the NT embryo comprises culturing the NT embryo in vitro until at least the 2-cell stage.
- 256) (New) The method of claim 255 further comprising transferring the NT embryo to a host mammal of the same species after the in vitro incubation.
- 257) (New) The method of claim 255 wherein the NT embryo undergoes cell division in the host mammal and develops into a fetus.
- 258) (New) The method of claim 255 wherein the NT embryo undergoes cell division in the host mammal and develops into an offspring.
- 259) (New) The method of claim 231 wherein the donor cell is arrested at late G1 phase by aphidicoline.
- 260) (New) The method of claim 231 wherein the donor cell is arrested at late G1 phase by mimosine.
- 261) (New) The method of claim 231 wherein the donor cell is arrested at late G1 phase by an arresting agent that inhibits CDK2 kinase.

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- 262) (New) The method of claim 231 wherein the donor cell is arrested at late G1 phase by olomoucine.
- 263) (New) The method of claim 231 wherein the donor cell is arrested at late G1 phase by roscovitine.
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